REMARKS

In the February 10, 2004 Office Action (hereinafter "Office Action"), Claims 1-12 and 25-36 were rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter. More particularly, it is stated in the Office Action that while the preambles to Claims 1 and 25 recited statutory subject matter, the claims would be rejected unless there is a positive recitation in the claim of the statutory subject matter. Claims 1-12 and 25-36 were also rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant believes that the rejections of Claims 1-12 and 25-36 are related to the 35 U.S.C. § 101 rejection mentioned above, i.e., for failing to include positive recitation of statutory subject matter in the body of the claims.

In addition to the above rejections, Claims 1, 3, 9, 10, 13, 15, 21-22, 25, 27, 33, and 34 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,295,521 to DeMarcken et al. (hereinafter "DeMarcken et al."). Claims 2, 14, and 26 were rejected under 35 U.S.C. § 103(a) as being unpatentable in view of DeMarcken et al. Claims 4-8, 11, 12, 16-20, 23, 24, 28-32, 35, and 36 were rejected under 35 U.S.C. § 103(a) as being unpatentable over DeMarcken et al. in view of PCT International Publication No. WO 01/29693 to Sabre, Inc. (hereinafter "Sabre"). With this response, Claims 1-36 remain pending in the application.

Pursuant to 37 C.F.R. § 1.111, and for the reasons set forth below, applicant respectfully requests reconsideration and allowance of this application. Prior to discussing the reasons why applicant believes that the pending claims are in condition of allowance, a summary of the present invention and the cited references is presented.

Interview Summary

Applicant wishes to thank the Examiner, as well as the Examiner's Supervisory Patent Examiner, for the personal interview conducted on April 27, 2004, with applicant's representative. The principal topic of discussion in the in-person interview was whether U.S. Patent No. 6,295,521 to DeMarcken et al. (hereinafter referred to as "DeMarcken et al.") anticipates the present claims, in particular independent Claims 1, 13, and 25. Unfortunately, an agreement in regard to the present application was not reached.

Also discussed in the in-person interview were proposed amendments to overcome the 35 U.S.C. § 101 and § 112, second paragraph rejections. The Examiner reiterated that statutory subject matter must be set forth as a positive recitation in the body of the claims in order to overcome these rejections. As described below, applicant has amended Claims 1 and 25 to include positive recitations of statutory subject matter in the body of the claims, and submits that the pending claims are now in condition for allowance with respect to 35 U.S.C. §§ 101 and 112, second paragraph.

Summary of the Invention

The present invention is directed towards a system, method, and computer readable medium for finding the best fares available in a computationally non-prohibitive manner in response to a fare request. As described in the application, typical best fare search engines explicitly examine a small subset of complete fare solutions between a specified origin and destination in response to a fare request. Only a subset of complete fare solutions are examined because (a) they are explicitly examined, and (b) the number of permutations available may reach into the tens of thousands. Clearly, examining all solutions would be computationally prohibitive. Unfortunately, by examining only a subset of complete fare solutions, typical best

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fare search engines often exclude fare solutions that are available at lower prices than those examined.

In contrast to the current best fare search engines, the present invention, at least implicitly, examines substantially all available fare solutions to determine the lowest fare. This implicit examination is performed in a computationally non-prohibitive manner using a solution tree in the following manner. The solution tree is a tree structure that represents a progression of fare solutions, beginning with partial fare solutions at the root node, to complete fare solutions at the leaf nodes. At each level in the solution tree, additional trip information is added to the previous level's partial fare solutions, such that fare solutions of each subsequent level are more complete fare solutions than those of the previous level.

As an example, the partial fare solution at the root node in the solution tree represents the fare query received from the client computer. As such, it typically only includes the origin and destination of the requested trip. At the first level from the root node, the query server generates new partial fare solutions in the solution tree with breakpoints, i.e., routes between the origin and destination with identifiable segments. These routes represent all of the various "paths" that a traveler might take between the origin and destination specified in the fare request. After determining these initial partial fare solutions, a second level of partial fare solutions are created in the solution tree by adding additional trip information, such as carrier data. A third level in the solution tree may then be created by assigning flights to the previous level's partial fare solutions. This process continues, with each iteration creating new levels in the solution tree, until all trip information is added, whereupon the nodes, i.e., the fare solutions, in the last level in the solution tree are no longer partial fare solutions, but complete fare solutions.

Without other action, by adding additional information to partial fare solutions of previous levels, the number of nodes in the solution tree will likely grow exponentially, and examining the resulting complete fare solutions in the solution tree would be computationally

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prohibitive. However, in addition to the additive process described above, as trip information is added to partial fare solutions, those partial fare solutions that are determined to be non-optimal are removed from further processing in the solution tree. By removing non-optimal nodes from the solution tree, the growth of the solution tree is kept in check, such that it will be computationally feasible to examine the completed fare solutions in the solution tree. For example, when a threshold price has been established, any partial fare solution that already exceeds that threshold need not be further processed. Additionally, if a nonstop flight is requested, those partial fare solutions that include at least one layover would be excluded from further processing.

An additional, significant advantage realized by this system is that non-optimal complete fare solutions are not generated. Thus, substantial computational effort is not expended. In contrast, other lowest price search engines first build complete fare solutions. Often, these complete fare solutions are organized in some manner as to facilitate their manipulation. Then, using the complete fare solutions, these other search engines execute various algorithms to identify the lowest priced fares without explicitly enumerating each completed fare solution. Clearly, substantial computational effort is expended by these systems in first generating the complete fare solutions. Such effort is not expended by the present invention, as only optimal complete fare solutions are ever constructed.

DeMarcken et al. (U.S. Patent No. 6,295,521)

DeMarcken et al. presents an airline travel planning system including a server computer that, in response to a search request, generates a set of **complete** pricing solutions. This set of complete pricing solutions is then stored in a data structure, more specifically, a directed acyclical graph (DAG), frequently referred to in DeMarcken et al. as the pricing graph. (See DeMarcken et al., Abstract, Col. 5, lines 36-41.) The complete pricing solutions, stored in the

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pricing graph, are returned to a client computer. (DeMarcken et al., Col. 5, lines 46-50.) Once the client computer has received the complete pricing solutions, the complete pricing solutions can be locally manipulated according to user preferences, including "enumerat[ing] pricing solutions from the directed acyclic graph (DAG) representation." (DeMarcken et al., Col. 5, lines 48-50.)

Thus, in contrast to the present invention, DeMarcken et al. generates a set of complete pricing solutions, up to tens of billions of solutions, stores them in the pricing graph, and forwards the complete pricing solutions to the client computer. Only after the complete pricing solutions are generated and stored in the pricing graph, and at the client computer, is the pricing graph manipulated to find the lowest pricing solutions contained within.

Sabre (PCT International Publication No. WO 01/29693)

Sabre purportedly discloses a method for searching for low fares using a virtual network. The virtual network is constructed from the paths between a specified origin and destination. The paths may include intermediate locations (i.e., non-direct flights between the origin and destination). Once constructed, the various paths in the virtual network represent **complete** fare solutions. After the virtual network is constructed, the cost of the various path segments between the origin and destination are added up, using various algorithms, to determine which path, or paths, represents the best, or lowest fare. Thus, unlike the present invention, non-optimal paths are constructed and exist within the virtual network prior to determining the best fares. Clearly, Sabre is much like DeMarcken et al. in that **complete** fare solutions are first created, then optimal solutions are selected from among the complete fare solutions. In contrast, the present invention only generates optimal complete solutions, as partial fare solutions that are determined to be non-optimal are not processed to completion.

Sabre was relied upon by the Office Action to combine with DeMarcken et al. for support of the following: the subset of complete fare solutions is an exhaustive set of complete fare solutions; and that eliminating non-optimal partial fare solutions may be performed recursively, iteratively, based on a threshold cost, or refined according to a lower bound. However, as described above, Sabre fails to teach or suggest creating partial fare solutions according to a fare request, repeatedly adding trip information to the partial fare solutions to form complete fare solutions, and, while adding the trip information, eliminating those partial fare solutions that are non-optimal from being further processed to complete fare solutions.

Rejections of the Claims

Rejections Under 35 U.S.C. § 101

As mentioned above, Claims 1-12 and 25-36 were rejected under 35 U.S.C. § 101 for failing to positively recite statutory subject matter to the body of the claims.

Applicant has amended independent Claims 1 and 25 to recite statutory subject matter in the body of the claims. All other similarly rejected claims depend from one of these amended, independent claims. Accordingly, applicant asserts that Claims 1-12, and 25-36 now meet the statutory requirements of 35 U.S.C. § 101, and request that the 35 U.S.C. § 101 rejection of Claims 1-12 and 25-36 be withdrawn.

Rejections Under 35 U.S.C. § 112, Second Paragraph

Claims 1-12 and 25-36 were rejected under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. More particularly, applicant believes that Claims 1-12 and 25-36 were rejected for failing to positively recite statutory subject matter in the body of the claims.

Applicant submits that the amendments to independent Claims 1 and 25, described above in regard to the 35 U.S.C. § 101 rejections, also serve to place these claims in condition for allowance with respect to the requirements of 35 U.S.C. § 112, second paragraph. Accordingly, applicant asserts that Claims 1-12 and 25-36 now meet the statutory requirements of 35 U.S.C. § 112, second paragraph, and request that the 35 U.S.C. § 112, second paragraph rejection of these claims be withdrawn.

Rejections Under 35 U.S.C. § 102(e)

Claims 1, 13, and 25

Claims 1, 13, and 25 were rejected in the Office Action under 35 U.S.C. § 102(e) as being anticipated by DeMarcken et al. More specifically, it is asserted in the Office Action that DeMarcken et al. teach, at the server computer, "determining a set of partial fare solutions for the trip," "adding trip information to the partial fare solutions in order to define a set of complete fare solutions for the trip," and "as trip information is added to the partial fare solutions, eliminating partial fare solutions that are non-optimal partial solutions." Applicant respectfully disagrees.

DeMarcken et al. Fail to Teach Determining a Set of Partial Fare Solutions

Applicant respectfully asserts that DeMarcken et al. fail to teach, at the server computer, "determining a set of partial fare solutions for the trip" as recited in Claims 1, 13, and 25. DeMarcken et al. disclose that, as a first step in responding to a user query, the query is given to a scheduler process that "produces a large number of itineraries" for the journey. (DeMarcken et al., Col. 4, lines 52-53.) DeMarcken et al. further disclose that the scheduler process uses various computer reservation systems (CRS), such as Sabre, Apollo, Amadeus, and WorldSpan, to produce the itineraries. (DeMarcken et al., Col. 4, lines 55-60.) Those skilled in the art will recognize that the itineraries received from a CRS are complete travel solutions, describing in detail the flights, segments, etc., between the a specified origin and destination. DeMarcken

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et al. also similarly describe the itineraries produced by the CRS systems as complete solutions. (DeMarcken et al., Col. 1, lines 26-42.) Thus, in contrast to Claims 1, 13, and 25, DeMarcken et al. teaches first obtaining a set of complete travel solutions from the described scheduling process. (DeMarcken et al., Col. 4, lines 52-55.)

Col. 51 - Finding the Best Price, and Col. 55, lines 54-56 of DeMarcken et al. are cited in the Office Action in support of the assertion that the cited reference teaches "determining a set of partial fare solutions." However, the so-called "partial pricing-solutions" in the cited passages are nothing more than intermediate states or placeholders for extracting information regarding the *complete* solutions already existing in the pricing graph. They are not "a set of partial fare solutions" to which trip information is ultimately added, which brings us to the next distinction between independent Claims 1, 13, and 25, and DeMarcken et al.

DeMarcken et al. Fail to Teach Adding Trip Information to Partial Fare Solutions

Applicant respectfully asserts that DeMarcken et al. fail to teach "adding trip information to the partial fare solutions in order to define a set of complete fare solutions for the trip," as recited in Claims 1, 13, and 25. As noted above, the "partial-solutions" of DeMarcken et al., Col. 55, lines 54-56, refer to temporary place holders to locations in the pricing graph that are used for **extracting** information regarding *complete* solutions **from** the pricing graph. None of the passages in DeMarcken et al. cited in the Office Action describe **adding** trip information **to** *partial* fare solutions in order to **define** *complete* fare solutions.

Moreover, DeMarcken et al. fail to disclose any additive process whatsoever for defining complete solutions. Rather, DeMarcken et al. disclose a "faring process 18," and an "availability system 58," that are used after retrieving the set of itineraries (i.e., complete solutions) from the CRS systems. The faring process and the availability system are used to determine whether all of the itineraries (i.e., complete solutions) retrieved from the CRS are still available to the

consumer. (DeMarcken et al., Col. 5, lines 1-13.) Thus, after a set of complete trip solutions has been generated, those complete solutions for fares that are no longer available, or for flights that have no available seats, are removed from the set. The remaining complete solutions are then stored in the pricing graph 38, for efficient storage and transmission to users. In other words, DeMarcken et al. describe retrieving numerous *complete* travel solutions, and then removing those complete solutions that don't actually exist. In contrast, Claims 1, 13, and 25 recites a building process, and, in particular, "adding trip information to the partial fare solutions in order to define a set of complete fare solutions for the trip."

DeMarcken et al. Fail to Teach Eliminating Partial Fare Solutions That Are Non-Optimal, as Trip Information Is Added

Applicant respectfully asserts that DeMarcken et al. also fail to teach "as trip information is added to the partial fare solutions, eliminating partial fare solutions that are non-optimal partial solutions," as recited in Claims 1, 13, and 25. In fact, applicant asserts that DeMarcken et al. disclose the opposite of "eliminating partial fare solutions that are non-optimal partial fare solutions."

DeMarcken et al. disclose that, as a first step in providing fare solutions to a client, **the typical number of pricing solutions generated by the scheduler process "ranges from tens of millions into hundreds of billions."** (DeMarcken et al., Col. 49, lines 19-23.) As the number of pricing solutions generated by the DeMarcken et al. scheduler process is so massive, they are compressed into a directed acyclical graph (DAG.) (DeMarcken et al., Col. 5, lines 36-45.) However, it should be understood that this DAG is merely a compressed representation of the tens of millions to hundreds of billions of complete solutions generated by the scheduler process, which complete solutions include **both** optimal and non-optimal solutions. (DeMarcken et al., Col. 49, lines 20-28.) Then, after generating the massive amount of all pricing solutions and storing them in the DAG, the DAG (including the tens of millions, or more, fare solutions) is

delivered to a client computer with a client process that is able to manipulate the DAG in order to extract particular pricing solutions "in accordance with user specified parameters." (DeMarcken et al., Col. 49, lines 41-42.) **In sum, DeMarcken et al. first generates tens of millions to hundreds of billions of complete fare solutions, after which a client process extracts the desirable, "optimal" complete fare solutions from them.**

Clearly, DeMarcken et al. fail to disclose removing non-optimal *partial* solutions "**as trip information is added** to the partial fare solutions," as recited in Claim 1. Indeed, if DeMarcken et al. system were to remove non-optimal partial solutions "as trip information is added," the DeMarcken et al. system would not generate tens of millions to hundreds of billions of complete fare solutions, would not need to store the solutions in a compressed storage structure, and would not provide a client process to extract the optimal complete fare solutions from the tens of millions of complete solutions it has generated. Furthermore, to assert that there are tens of millions to hundreds of billions of "optimal" complete fare solutions is simply illogical.

In contrast to DeMarcken et al., and as recited in Claims 1, 13, and 25, non-optimal partial fare solutions are removed by the claimed invention as trip information is added. As such, only optimal complete fare solutions are generated. Accordingly, a compressed storage structure, as disclosed by DeMarcken et al., is unnecessary. Similarly, a client process to extract optimal solutions from the storage structure is also superfluous to the present invention. Clearly, the DeMarcken et al. method and system for extracting pricing solutions is fundamentally and patentably distinct from the claimed method and system for finding a best fare.

For the reasons described above, applicant respectfully submits that DeMarcken et al. fail to disclose each element of independent Claims 1, 13, and 25. Accordingly, applicant respectfully requests that the 35 U.S.C. § 102(e) rejections of Claims 1, 13, and 25 be withdrawn, and the claims allowed.

Claims 3, 15, and 27

Claims 3, 15, and 27 were rejected under 35 U.S.C. § 102(e) as being anticipated by DeMarcken et al. More specifically, it is asserted that DeMarcken et al. discloses "wherein said subset of complete fare solutions is a predetermined number of lowest cost fare solutions." Applicant respectfully disagrees with this assertion.

The Office Action refers to DeMarcken et al., Col. 2, lines 31-37, and Col. 4, lines 30-41, for support of the § 102(e) rejection. However, while both passages appear to indicate that the pricing graph 38 (also referred to as pricing solution 38) can be manipulated to extract complete solutions stored within, neither passage of DeMarcken et al. discloses that the subset of complete fares solutions returned to the consumer is **a predetermined number** of lowest cost fare solutions.

Further, Claims 3, 15, and 27, depend from independent Claims 1, 13, and 25, respectively. Accordingly, for the same reasons described above in regard to Claims 1, 13, and 25, applicant asserts that DeMarcken et al. also fail to disclose each element of these dependent claims when read in conjunction with the independent claims from which they depend.

For the above described reasons, applicant asserts that DeMarcken et al. fail to disclose each element of Claims 3, 15, and 27. Accordingly, applicant requests that the 35 U.S.C. § 102(e) rejection of Claims 3, 15, and 27, be withdrawn, and the claims allowed.

Claims 9-10, 21-22, and 33-34

Claims 9-10 depend from independent Claim 1, Claims 21-22 depend from independent Claim 13, and Claims 33-34 depend from independent Claim 25. For the same reasons described above in regard to independent Claims 1, 13, and 25, applicant asserts that DeMarcken et al. fail to disclose each element of these dependent claims, especially when read in conjunction with the

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independent claims from which they depend. Therefore, applicant requests that the 35 U.S.C. § 102(e) rejection of Claims 3, 9-10, 21-22, 27, and 33-34 be withdrawn, and the claims allowed.

Rejections Under 35 U.S.C. § 103(a)

Claims 2, 14, and 26

Claims 2, 14, and 26, were rejected under 35 U.S.C. § 103(a) as being obvious in view of DeMarcken et al. More particularly, it is stated in the Office Action that while DeMarcken et al. do not disclose "assigning the fare components to a plurality of first nodes, at least one carrier to a plurality of second nodes, at least one flight corresponding to a plurality of third nodes, assigning at least one priceable unit to a plurality of fourth nodes, and assigning at least one fare component corresponding to a plurality of leaf nodes," a data structure (presumably the pricing graph) can be manipulated "to **extract** a plurality of pricing solutions." Accordingly, it is asserted in the Office Action that it would have been obvious to one of ordinary skill in the art that DeMarcken et al.'s system could be arranged according to the assignment of nodes claimed in these dependent claims.

As described above, applicant respectfully disagrees that DeMarcken et al. disclose the method and system of independent Claims 1, 13, and 25, from which Claims 2, 14, and 26 depend, respectively.

Applicant agrees with the Examiner that DeMarcken et al. does not disclose the sequence recited in Claims 2, 14, and 26 for adding trip information to partial fare solutions to create complete fare solutions. In fact, as described above, DeMarcken et al. completely fail to disclose, teach, or suggest the process of **adding** trip information to *partial* fare solutions **to define** *complete* fare solutions in the first place. Instead, DeMarcken et al. discloses a process of obtaining *complete* solutions (itineraries) from a CRS system, and storing them in the pricing graph, which, according to DeMarcken et al., may be subsequently manipulated "to **extract** a plurality of pricing solutions". (DeMarcken et al., Col. 2, lines 38-51, emphasis added.)

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Furthermore, as DeMarcken et al. discloses a system that gathers and stores *complete* solutions in a pricing graph, and that is subsequently manipulated "to **extract** a plurality of pricing solutions." DeMarcken et al. fail to disclose, teach, or suggest a system of **adding** trip information to partial fare solutions, and in particular, adding "fare components to a plurality of first nodes, at least one carrier to a plurality of second nodes, at least one flight corresponding to a plurality of third nodes, assigning at least one priceable unit to a plurality of fourth nodes, and assigning at least one fare component corresponding to a plurality of leaf nodes." Clearly, DeMarcken et al. teach away from the present invention, in particular, disclosing a **subtractive** process rather than an **additive** process. Accordingly, applicant asserts that it would neither be possible or obvious to one of ordinary skill in the art to arrange the DeMarcken et al. system according to the elements of Claims 2, 14, and 26.

For above the described reasons, applicant asserts that DeMarcken et al. fail to teach or suggest each element of dependent Claims 2, 14, and 26. Moreover, applicant asserts that DeMarcken et al. teaches away from the elements recited in Claims 2, 14, and 26. Accordingly, applicant respectfully requests that the 35 U.S.C. § 103(a) rejection of Claims 2, 14, and 26 be withdrawn, and the claims allowed.

<u>Claims 4-8, 11-12, 16-20, 23-24, 28-32, and 35-36</u>

Claims 4-8, 11-12, 16-20, 23-24, 28-32, and 35-36 were rejected under 35 U.S.C. § 103(a) as being unpatentable over DeMarcken et al. in further view of Sabre. Applicant respectfully disagrees.

Claims 4-8, 11-12, 16-20, 23-24, 28-32, and 35-36 each depend from one of independent Claims 1, 13, or 25, and must be read in combination with the independent claims from which they depend. Therefore, applicant asserts that DeMarcken et al. fail to teach or suggest each element of these dependent claims for the same reasons described above in regard to independent

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Claims 1, 13, and 25. Accordingly, applicant requests that the 35 U.S.C. § 103(a) rejections of Claims 4-8, 11-12, 16-20, 23-24, 28-32, and 35-36 be withdrawn, and the claims allowed.

Dependent Claims 4-8, 11-12, 16-20, 23-24, 28-32, and 35-36 include a myriad of recitations not disclosed, taught, or suggested by any of the cited and applied references, either alone or in combination, particularly when these recitations are considered in combination with the recitations of the independent claims from which they depend. Some of these further distinguishing recitations are described below.

Claims 4, 16, and 28

Claims 4, 16, and 28, were rejected under 35 U.S.C. § 103(a) as being unpatentable over DeMarcken et al. in view of Sabre. More particularly, it is stated in the Office Action that DeMarcken et al. fail to disclose that the "subset of complete fare solutions is an exhaustive set of said complete fare solutions.." However, it is asserted that Sabre discloses that the subset of complete fare solutions is an exhaustive set of said complete fare solutions, and that it would be obvious to one skilled in the art to combine the teachings of DeMarcken et al. and Sabre. Applicant respectfully disagrees, and asserts that DeMarcken et al. and Sabre, alone and in combination, fail to teach or suggest this element of Claims 4, 16, and 28.

Sabre, page 2, lines 18-19, page 3, lines 1-2, and page 4, lines 17-22 are cited in support of the assertion made in the Office Action. However, these passages of Sabre do not teach or suggest that the subset of complete fare solutions returned to the consumer is an **exhaustive** set of complete fare solutions, or in other words, **all of the complete fare solutions**. Instead, these passages of Sabre disclose that a "large number of possibilities can be considered without actually generating them." (Sabre, page 4, lines 19-20.) Applicant asserts that considering a large number of possibilities is clearly patentably distinguishable from returning an exhaustive set of complete fare solutions generated by the additive process of the present invention.

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For the reasons described above, applicant asserts that DeMarcken et al. and Sabre, alone and in combination, fail to teach or suggest each element of Claims 4, 16, and 28. Accordingly, applicant respectfully requests that the 35 U.S.C. § 103(a) rejection of Claims 4, 16, and 28 be withdrawn, and the claims allowed.

Claims 5, 17, and 29

Claims 5, 17, and 29, were rejected under 35 U.S.C. § 103(a) as being unpatentable over DeMarcken et al. in view of Sabre. It is asserted in the Office Action that Sabre discloses that "adding trip information and eliminating partial fare solutions are performed in a recursive manner." Applicant respectfully disagrees, and asserts that DeMarcken et al. and Sabre, alone and in combination, fail to teach or suggest the above recited element.

Page 9, lines 13-14, and page 10, lines 2-4, of Sabre are cited in support of the assertion made in the Office Action. However, while these passages of Sabre purportedly teach recursively **extracting** *complete* solutions from a virtual network structure, Sabre fails to disclose, teach, or suggest "**adding** trip information and eliminating *partial* fare solutions" in a recursive manner, as recited in Claims 5, 17, and 29. Applicant asserts that adding trip information and eliminating *partial* fare solutions in a recursive manner is entirely distinct from extracting *complete* solutions in a recursive manner.

For the additional reasons described above, applicant asserts that DeMarcken et al. and Sabre, alone and in combination, fail to teach or suggest each element of Claims 5, 17, and 29. Accordingly, applicant respectfully requests that the 35 U.S.C. § 103(a) rejection of Claims 5, 17, and 29 be withdrawn, and the claims allowed.

Claims 6, 18, and 30

Claims 6, 18, and 30, were rejected under 35 U.S.C. § 103(a) as being unpatentable over DeMarcken et al. in view of Sabre. It is asserted in the Office Action that Sabre discloses that "adding trip information and eliminating partial fare solutions are performed in an iterative

manner." Applicant respectfully disagrees, and asserts that DeMarcken et al. and Sabre, alone and in combination, fail to teach or suggest the above recited element.

Page 9, lines 18-22, of Sabre are cited in support of the assertion made in the Office Action. This passage of Sabre describes each successive recursive operation of a search as an "iteration," all in the context of **extracting** *complete* solutions **from** a virtual network structure. In contrast, Sabre fails to disclose, teach, or suggest **adding** trip information and eliminating *partial* fare solutions in an iterative manner. Applicant asserts that adding trip information and eliminating *partial* fare solutions in an iterative manner is entirely distinct from extracting *complete* solutions from a structure in an iterative manner.

For the additional reasons described above, applicant asserts that DeMarcken et al. and Sabre, alone and in combination, fail to teach or suggest each element of Claims 6, 18, and 30. Accordingly, applicant respectfully requests that the 35 U.S.C. § 103(a) rejection of Claims 6, 18, and 30 be withdrawn, and the claims allowed.

<u>Claims 7, 19, and 31</u>

Claims 7, 19, and 31, were rejected under 35 U.S.C. § 103(a) as being unpatentable over DeMarcken et al. in view of Sabre. It is asserted in the Office Action that Sabre discloses that "said partial fare solutions are eliminated based on a threshold cost." Applicant respectfully disagrees, and asserts that DeMarcken et al. and Sabre, alone and in combination, fail to teach or suggest the above recited element.

Page 4, lines 17-23, page 9, lines 6-17, and page 11, lines 16-18, of Sabre are cited in support of the assertion made in the Office Action. These passages purportedly disclose a search algorithm that extracts *complete* solutions **from** a virtual network structure according to a lowest cost. However, contrary to the assertion made in the Office Action, these passages fail to disclose, teach, or suggest eliminating *partial* fare solutions based on a threshold cost, as recited in Claims 57, 19, and 31. Applicant asserts that extracting *complete* solutions from a structure

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according to a lowest cost is patentably distinguishable from eliminating *partial* fare solutions based on a threshold cost.

For the additional reasons described above, applicant asserts that DeMarcken et al. and Sabre, alone and in combination, fail to teach or suggest each element of Claims 7, 19, and 31. Accordingly, applicant respectfully requests that the 35 U.S.C. § 103(a) rejection of Claims 7, 19, and 31 be withdrawn, and the claims allowed.

Claims 8, 20, and 32

Claims 8, 20, and 32, were rejected under 35 U.S.C. § 103(a) as being unpatentable over DeMarcken et al. in view of Sabre. It is asserted in the Office Action that Sabre discloses that "said partial fare solutions are eliminated based on a refined lower bound." Applicant respectfully disagrees, and asserts that DeMarcken et al. and Sabre, alone and in combination, fail to teach or suggest the above recited element.

Page 9, line 6 – page 12, line 11, of Sabre are cited in support of the assertion made in the Office Action. Similar to those passages of Sabre discussed above in regard to Claims 7, 19, and 31, these passages of Sabre discloses a search algorithm to extract *complete* solutions from a virtual network structure. Contrary to the assertion made in the Office Action, these passages do not disclose eliminating *partial* fare solutions based on a refined lower bound, as recited in Claims 8, 20, and 32. Applicant asserts that extracting the lowest priced *complete* solutions from a structure is patentably distinguishable from eliminating *partial* fare solutions based on a refined lower bound.

For the additional reasons described above, applicant asserts that DeMarcken et al. and Sabre, alone and in combination, fail to teach or suggest each element of Claims 8, 20, and 32. Accordingly, applicant respectfully requests that the 35 U.S.C. § 103(a) rejection of Claims 8, 20, and 32 be withdrawn, and the claims allowed.

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CONCLUSION

In view of the foregoing remarks, it is believed that the present invention is now in condition for allowance. Reconsideration and allowance of Claims 1-36 is solicited. If the Examiner has any questions, he is invited to call applicant's attorney at the number listed below.

Respectfully submitted,

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I hereby certify that this correspondence is being deposited with the U.S. Postal Service in a sealed envelope as first class mail with postage thereon fully prepaid and addressed to Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the below date.

Date: May 10, 2004

TSP:lal

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